

WHAT IS CLAIMED IS

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1. An image detecting method comprising the steps of:

- 10 a) searching for a pattern satisfying a predetermined commencement requirement by scanning an input image;
- b) using the pattern as a starting point, with referring to a dictionary storing therein distances between the center line and an edge of a detection-target semicircle, determining for each of a
- 15 predetermined number of main scan lines along a sub-scan direction whether or not a predetermined edge pattern occurs within a respective range of the distance of said dictionary; and
- c) determining a detection of the semicircle
- 20 when the number of error main scan lines on which the predetermined edge pattern does not occur within the respective range of the distance of said dictionary is less than a predetermined threshold.

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2. The method as claimed in claim 1, wherein:
the predetermined commencement requirement
comprises requirements in which a ratio of black pixels
occurring on a current main scan line between
5 predetermined edge patterns is more than a predetermined
value, and, also, a ratio of white pixels at the same
positions but on an immediately preceding main scan line
is more than a predetermined value.

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3. The method as claimed in claim 1, wherein:
the number of error main scan lines comprises
15 any one of the total of main scan lines on which
predetermined left or right edge pattern does not occur,
the number of successive main scan lines on which the
predetermined left edge pattern does not occur, and the
number of successive main scan lines on which the
20 predetermined right edge pattern does not occur.

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4. An image detecting system comprising:

a part searching for a pattern satisfying a predetermined commencement requirement by scanning an input image;

a part using the pattern as a starting point,
5 with referring to a dictionary storing therein distances between the center line and an edge of a detection-target semicircle, determining for each of a predetermined number of main scan lines along a sub-scan direction whether or not a predetermined edge pattern
10 occurs within a respective range of the distance of said dictionary; and

a part determining a detection of the semicircle when the number of error main scan lines on which the predetermined edge pattern does not occur
15 within the respective range of the distance of said dictionary is less than a predetermined threshold.

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5. The system as claimed in claim 4, wherein:
the predetermined commencement requirement comprises requirements in which a ratio of black pixels occurring on a current main scan line between
25 predetermined edge patterns is more than a predetermined

value, and, also, a ratio of white pixels at the same positions but on an immediately preceding main scan line is more than a predetermined value.

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6. The system as claimed in claim 4, wherein:
the number of error main scan lines comprises
10 any one of the total of main scan lines on which
predetermined left or right edge pattern does not occur,
the number of successive main scan lines on which the
predetermined left edge pattern does not occur, and the
number of successive main scan lines on which the
15 predetermined right edge pattern does not occur.

20 7. A program, read by a computer, which thus
executes the program so as to perform a process of
detecting an predetermined figure, said program
comprising:

first program code means for searching for a
25 pattern satisfying a predetermined commencement

requirement by scanning an input image;

second program code means for using the pattern as a starting point, with referring to a dictionary storing therein distances between the center
5 line and an edge of a detection-target semicircle, determining for each of a predetermined number of main scan lines along a sub-scan direction whether or not a predetermined edge pattern occurs within a respective range of the distance of said dictionary; and

10 third program code means for determining a detection of the semicircle when the number of error lines on which the predetermined edge pattern does not occur within the respective range of the distance of said dictionary is less than a predetermined threshold.

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8. The program as claimed in claim 7,

20 wherein:

the predetermined commencement requirement comprises requirements in which a ratio of black pixels occurring on a current main scan line between
predetermined edge patterns is more than a predetermined
25 value, and, also, a ratio of white pixels at the same

positions but on an immediately preceding main scan line is more than a predetermined value.

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9. The program as claimed in claim 7,
wherein:

the number of error main scan lines comprises
10 any one of the total of main scan lines on which
predetermined left or right edge pattern does not occur,
the number of successive main scan lines on which the
predetermined left edge pattern does not occur, and the
number of successive main scan lines on which the
15 predetermined right edge pattern does not occur.

20 10. A computer-readable recording medium
storing therein a program, read by a computer, which
thus executes the program so as to perform a process of
detecting an predetermined figure, said program
comprising:

25 first program code means for searching for a

pattern satisfying a predetermined commencement
requirement by scanning an input image;

second program code means for using the
pattern as a starting point, with referring to a
5 dictionary storing therein distances between the center
line and an edge of a detection-target semicircle,
determining for each of a predetermined number of main
scan lines along a sub-scan direction whether or not a
predetermined edge pattern occurs within a respective
10 range of the distance of said dictionary; and

third program code means for determining a
detection of the semicircle when the number of error
main scan lines on which the predetermined edge pattern
does not occur within the respective range of the
15 distance of said dictionary is less than a predetermined
threshold.

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11. The recording medium as claimed in claim
10, wherein:

the predetermined commencement requirement
comprises requirements in which a ratio of black pixels
25 occurring on a current main scan line between

predetermined edge patterns is more than a predetermined value, and, also, a ratio of white pixels at the same positions but on an immediately preceding main scan line is more than a predetermined value.

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12. The recording medium as claimed in claim
10 10, wherein:

the number of error main scan lines comprises
any one of the total of main scan lines on which
predetermined left or right edge pattern does not occur,
the number of successive main scan lines on which the
15 predetermined left edge pattern does not occur, and the
number of successive main scan lines on which the
predetermined right edge pattern does not occur.